



Environmental Management Plan (EMP)

ESKOM - LEACHES BAY SUBSTATION

ELIDZ PROJECT

ABBREVIATIONS

| | |
|------|--|
| CELO | Contractor Environmental Liaison Officer (Can be the Contractor Site Supervisor on small projects) |
| CM | Contract Manager |
| DEAT | Department of Environmental Affairs and Tourism |
| EAP | Environmental Assistant Practitioner |
| ECO | Environmental Control Officer (Can be the Site Supervisor on small projects) |
| EIA | Environmental Impact Assessment |
| EO | Environmental Officer |
| ESO | Environmental Site Officer |
| I&AP | Interested and Affected Parties |
| PM | Project Manager |

DEFINITIONS

Auditing – A systematic, documented, periodic and objective evaluation of how well the environmental management plan is being implemented and is performing the aim of helping to protect the environment.

Built environment – man-made physical surrounding composed of things like buildings, houses, roads, etc.

Conservation – this involves protecting resources, especially the biodiversity found in the area.

Contamination – making something impure or polluting.

Corrective action – response for addressing and environmental problem that is in conflict with the EMP determined through audits, monitoring or management review.

Environment – Our surroundings, including living and non-living elements, e.g. land, air, animals, plants, soil and humans.

Hazardous waste – Waste that can cause damage to plants, animals, their habitat and well-being of human beings, e.g. waste from detergents, pesticides, *etc.*

Recycling – Collecting, cleaning and re-using materials.

Stakeholders – A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity.

Waste Management – Classifying, recycling, treatment and disposal of waste generated during reconstruction and decommissioning activities.

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1. SCOPE

The EMP for Leaches Bay Substation aims to meet the following principles:

- 1) Continuous improvement: the proponent or implementing agency must commit to review and continually improve environmental management;
- 2) Integration across operations: This EMP must integrate across existing operational units such as safety, health and environment (SHE);
- 3) Legislation: The developer, engineer, contractor and sub-contractor must take cognisance of the fact that certain activities conducted during construction may require further licensing or environmental approval, *e.g.* bulk fuel storage, waste disposal, *etc.* The Contractor must continuously consult the ER, EO and ECO in this regard; and
- 4) Broad level of commitment: the effective implementation of this EMP hinges on broad commitment from management and the entire workforce;
- 5) Flexible and response: The construction team and all relevant personnel must be prepared to make rapid short-term responses to problems or incidents. This EMP is not “cast in stone”, and this implies that it must be continuously reviewed in consideration of the emerging dynamics of the proposed upgrade of the substation.

Eskom requires the Contractor to comply with the following conditions:

1. Take into consideration the legal rights of affected communities and Eskom Regional staff.
2. Always behave professionally on and off site.
3. Ensure quality in all work done, technical and environmental.
4. Resolve problems and claims arising from damage immediately to ensure a smooth flow of operations.
5. To preserve the natural environment by limiting any destructive actions on site, avoiding sensitive areas and actively implement the conditions of the EMP.

2. PROJECT BACKGROUND & GENERAL PRINCIPLES

The Environmental Control Officer (ECO) on site shall, in conjunction with the Contractor, ensure that all site staff are informed of the details of this document as well as the conditions thereof. The ECO shall convey the contents of this document to the Contractor site staff and discuss the contents in detail with the Project Manager and Contractor. The ECO will also determine compliance with the EMP.

No work shall commence until permission is granted from the Environmental Advisor from Eskom.

2.1. PROJECT EXECUTION AREA

The proposed upgrade will take place in an already existing substation, Leaches Bay Substation located in within Buffalo City Municipality. The area is an already developed residential area/industrial area.

2.2. PROJECT SCOPE OF WORK

The scope of work for Leaches Bay Substation Primary Plant is as follows:

Civil Work Scope:

Supply and install the following equipment foundations as per the foundation layout drawing (D-EC-1973-5, Rev2) and Eskom D-DT specifications:

- 4x 132kV Tubular Busbar Foundation.
- 1x 132kV Breaker Foundation.
- 2x 132kV Isolator Foundation.
- 3x Medium Equipment Support Foundation – CT
- 4x Medium Equipment Support Foundation – PI
- 1x 11kV NECR'T/AUX. TRFR Fondation
- 1x 22kV Isolator Foundation
- 2x Road Crossing Foundation
- 1x MV Cable Sealing End Foundation
- 5x 14m Lighting/Lightning mast foundation
- Cast a 40MVA Transformer Plinth, slipway and build a transformer bound wall
- Build 2x PIU (5JB-3200) Plinth

Extend the existing 750mm wide LV cable trenches with covers to near each new equipment of the transformer bay as shown on D-EC-1973-12, Rev 1 and D-EC-1735 Sheet 1 Rev 4.

Demolish the existing Oil Holding Dam, Supply and install a new Oil Holding Dam of 32 000 litres Oil Capacity.

Remove the existing layer of yard stone in the area where construction work is to be carried out. Stockpile and re-spread the yard stone to a layer thickness of 100mm after the work has been completed. Spray weed killer on all the stoned areas once all the stoning has been completed.

Earth Work Scope:

Connect the new equipment of the new 3rd transformer bay to the existing earthmat by at least two 50x3mm flat copper strap as indicated on D-EC-1973-4, Rev 1.

All new equipment are to be earthed using the foundation HD bolts. The earth tails (flat copper) comes on the side of the foundations to the earthmat as indicated on D-DT-5240 Sheet 6 Rev 3. Install earthing balls on the equipment steelwork supports as detailed on D-EC-1973 Sheet 4 Rev 1, final position of earthing balls is to be negotiated with the Customer Network Centre.

The isolator mechanical boxes and handles are to be earthed in accordance with the manufacture's isolator specification

Carry out additional earth resistivity and continuity test to ensure continuity between each existing element and the earthmat. Assess the existing earthmat and equipment bonding integrity.

Steel Erection Scope:

Supply, assemble, erect and bolt in position the following equipment steelworks as per the steelwork layout drawing (D-EC-1973-6, Rev 1) and Eskom D-DT specifications:

- 4x 132kV Tubular Busbar Support.
- 1x 132kV Breaker Support.
- 1x 132kV Isolator Standard Support.
- 1x 132kV Isolator Inline Support.
- 3x 2.5 Medium Equipment Support– CT
- 4x 2.5 Medium Equipment Support– PI
- 3x M1 Medium Equipment Cap– CT
- 4x M1 Medium Equipment Cap– PI
- 1x 11kV NECR'T/AUX. TRFR Support.
- 1x 22kV Isolator Support.
- 1x 11kV Surge Arrestor Bracket
- 2x Road Crossing Support.
- 1x MV Cable Sealing End Support
- 5x 14m Lighting/Lightning mast
- 2x YMK PIU (5JB-3200) Steelwork Assembly

Install equipment labels and phasing discs for the new transformer bay. The positions of the phasing discs are indicated on D-EC-1973 Sheet 6 Rev 1.

Equipment Erection Scope:

Take delivery or Supply (as applicable), erect, bolt in position and commission the following equipment as per the electrical equipment layout drawing (D-EC-1973-7, Rev 1) and Eskom D-DT specifications:

- 1x 132kV Breaker.
- 3x 132kV Current Transformer.
- 1x 132kV Isolator Standard.
- 1x 132kV Isolator Inline.
- 10x 132kV Post Insulators
- 3x 132kV station class Surge Arrestors.
- 1x 132/11kV 40MVA Two winding Transformer.
- 1x 11kV NEC/NER/AUX TFR.
- 6x 11kV Surge arrestors.
- 1x 22kV Isolator.
- 6 x 66kV Post insulators.
- 1x PIU (5JB-3200).

Remove the existing 400W/230V floodlights from the existing lighting/lightning masts, Supply and install new 60W/230V 44x LED Flood lights on the existing and the new masts.

Extend the existing 132 kV tubular busbar and install 2x 132 kV Busbar Isolators.

Install new 12x1 core 630 mm² XLPE cables from the transformer cable end support to the 11kV MV Indoor incoming feeder panel.

The Isolator JB bracket and equipment are to be mounted on Busbar 1 isolator (IS16) and Busbar 2 isolator (IS15).

Current Transformer JB is to be mounted on CT20 on the trench side as per D-EC-1973 Sheet 6 & 12.

The Orientation of the breaker is to be such that Pole A, is connected to Red Phase.

All equipment mounted on equipment supports are to be as per the BOQ & Project Specification.

Conductors & Clamps:

Electrical phasing e.g. (R W B) of the new 132/11kV transformer bay is to be done as per D-EC-1938.

The new 132/11kV transformer bay equipment are to be stringed with a single bull conductor on the 132kV side and a covered twin bull conductor on the 11kV side. All associated jumpers and clamps connecting to the stringer are to be installed as per D-EC-1973 Sheet 8 Rev1.

Testing, Pre-commission and commission Scope:

Pre-commission the new Primary Plant, 1x 40MVA 132/11kV Transformer, 1x 132kV Breaker, 2x 132kV Isolators, 1x Complete Sets 132kV Post Type Current Transformers, 1x NECR-T and 1x 22kV Isolator on the Transformer No. 3 Bay.

Testing and commission of the 1C-4x630mm² cables from the cable end support to the incoming feeder panel in the control room.

The scope of work for Leaches Bay Substation Control Plant is as follows:

Protection Scope:

- Extend Leaches Bay MV board to include additional 1x11kV-2500A incoming feeder, 1x11kV-2500A Bus section breaker and 2x11kV-2500A outgoing transfer switch feeder breaker.
- Supply and Install Transformer 3 1x 11kV 2500A Incomer switchgear Panel.
- Supply and install a new 5JB—3200 (PIU) & 5TM3100 Transformer & Tap change Protection Scheme (Include recorder Points and sacrificial relays).
- Supply and Install 1x 11kV 2500A Bus Section Panel and Link to Buszone scheme. Supply and Install 2x 11kV 2500A offboard Transfer Feeders with 3CF-4100F with Solkor N Protection.
- Link 3rd Transformer bay to 132kV Bus Zone Scheme
- Use spare vamp 3BP-4901 protection scheme to accommodate the 2 x feeder schemes.
- Supply and Install new control cables for protection schemes and commission all the protection schemes.
- Supply and Install, gland, ferrule and terminate all the new control technology cables as per cabling and cable block diagrams.
- Supply and Install all control cabling to busbar and feeder links.
- Mount and earth the new 11kV Transformer Incomer switchgear panel, protection scheme, bus section panel and transfer feeder Panels in the Control Room as per Control Room Layout.
- The protection panels must be earthed using a 2 x (25 x 3mm) flat copper earth tails per panel, bolted to the panel and main trench earth. Each weld has to be witnessed by the clerk of works, numbered and photographed (before and after bitumen painting) by the contractor and priced as part of the installation of the earth tails.

SCADA Scope:

- Expand the existing IDF verticals to cater for new protection, metering and DC installations.
- Integrate new schemes onto the existing D20 RTU (Config 08, 10m VME)
- Accommodate supervisory alarms and control signals on the new D20 and IDF.

Metering Scope:

- Supply and Install class 0.5 stats meter for new transformer with Vecto III.
- Provide cabling, pre-commission and commission new metering installations.

DC Scope:

- Decommission and remove the existing 110VDC battery bank and charger and provide Eskom with Safe Environmental Disposal certificate.
- Supply and replace the existing "FCP 21 cells 161AH with New 52 cells" 170AH lead Acid Battery Bank with 30A 110V switch mode Charger.
- Supply and install Battery Terminating Device and Inter-row Connectors to fit new 110V 52 x Lead Acid cells in the battery room according to Eskom standards.
- Supply, Install and Commission all necessary cabling from the Battery Charger to The Battery Bank and to the AC/DC distribution Panel.
- Install, gland, ferrule and terminate all new control technology cables as per cabling – and cable block diagrams.
- Supply and Install Battery Stand
- Supply and Install Safety Signs
- Provide all relevant documents

Telecoms Scope:

- Supply and Install Fibre Optic Patch Box 2552A - by 3M for Transformer PIU Junction Box.
- Supply and Install 12 core 1310nm multi mode All Dielectric CST fibre (50/125um), 12 Core 1310nm 50/125um Duplex multimode Patch leads 3meter(ST/ST), and Heavy Duty Duct fibre 6 core 1310nm Multi Mode (50/125um)
- Supply and Install 32mm Optex sub duct, 6 Way ODF (Patch Panel, 6 Way termination box, CAT6 Copper Ethernet Cable and Cable Splicing (Including kit)
- Connect and commission all protection circuits using the newly installed fibre optic cable.
- The supplier shall provide all equipment necessary to test the fibre during commissioning and a test report should be compiled on completion.
- Each individual fibre shall be tested. Hand over documentation shall be submitted in hard as well as electronic format.
- The contractor shall provide a list of test equipment and calibration certificates for acceptance by Eskom before commencing of work.
- Supply and Install a Meinberg Lantime M320 GPS Clock with ancillaries in existing remote engineering panel.
- The handover documents should include:
 - ✓ Test results
 - ✓ Number of joint boxes and position on the line
 - ✓ Sagging chart
 - ✓ Type of cable and specification (manufacturer name)
 - ✓ Type of hardware and manufacture name.

AC/DC Scope:

- Supply and Install Yard Change over AC Board without distribution (Includes control module, single and dual, distribution module and termination module with steel structure and automatic transfer switch). The Yard AC Board to be wall Mounted as shown on the control room layout.
- Supply and Install, gland, ferrule and terminate all the new control technology cables as per cabling - and cable block diagrams.
- Provide all cabling to lighting masts from AC YARD BOX.

Note:

- Supervisory cables to be installed and cable ends to be terminated as per Eskom agreed specifications.
- Supplier to supply all material like cables Krone, cable ties, etc.
- ALL Protection panels must be tested.
- All tests must be performed from Power-On to the Primary Plant circuit breaker for all controls.
- Handover certificate and records to be supplied to Eskom.
- All cables must be labelled.
- *Contractor to supply all material like cables, cross connection, coax cable, glands, connectors, lugs, KRONE, KRONE labels, cable markings and cable ties etc.*

Isolator/Current Transfer Junction Box Scope:

- Supply and install a Double circuit Busbar isolator junction with inserts box on Transformer No. 3 HV Busbar isolators and a single circuit isolator junction box on Transformer No.3 MV isolator junction box.
- Supply and install HV CT's junction box with inserts on Transformer No. 3 HV CT.

Testing, Pre-commission and commission Scope:

- Pre-commission and commission the new 5JB—3200 PIU & 5TM3100 Transformer & Tap Changer Protection Scheme to the 132/11kV Transformer No.3.
- Pre-commission and commission the 1x 11kV 2500A Incomer switchgear Panel, 1x 11kV 2500A Bus Section and 2x 11kV 2500A Transfer Feeders with 3CF-4100F with Solkor Protection.
- Pre-commission and commission the control technology cables from the AC/DC Distribution Panel.
- Pre-commission and commission all isolator connections.
- Test and commission all the metering equipment and current transformers.
- All Protection panels must be tested.
- All tests must be performed from the POWER-ON to the Primary Plant circuit breaker for all controls.
- Database configuration of the station on POWER-ON.
- Commissioning of the station to POWER-ON.

Pre-commission and final commissioning in collaboration with Eskom

2.3. ROLE PLAYERS AND RESPONSIBILITIES

The successful execution of this EMP will require active involvement of all stakeholders taking part in the substation upgrade. It is important that all the stakeholders understand their roles and responsibilities clearly. There must be clear communication lines to receive and convey information on the project. The following potential role-players and their responsibilities are going to be involved in this project (The matrix below provides a list of all role-players. A section on their contact details must be completed and given to all relevant stakeholders at the beginning of the project/awarding of the contract):

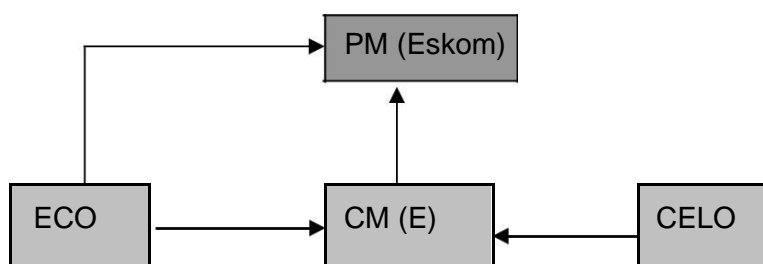
Responsibility Matrix.

| FUNCTION | NAME & TEL | RESPONSIBILITY |
|--|------------|---|
| Project Manager (PM) | | <input type="checkbox"/> Tasked with the overall management of project, contractors, consultants and EMP implementation. <input type="checkbox"/> The PM also ensures that all environmental procedures are met. <input type="checkbox"/> Report all incidents identified during construction to Transmission Environmental Officer <input type="checkbox"/> Confine the construction site to the demarcated area. <input type="checkbox"/> Rectify transgressions through the implementation of corrective action. <input type="checkbox"/> Conduct internal audits of the construction site against the EMP. |
| Site Supervisor/ Contract Manager (CM) | | <input type="checkbox"/> Oversees site works, liaison with Contractor, PM and ECO |
| Environmental Control Officer (ECO) | | <input type="checkbox"/> Act as a liaison between Eskom, Contractor and the Landowner. <input type="checkbox"/> Monitor the Implementation of EMP, condition of authorisations, & relevant legislation <input type="checkbox"/> Provide regular reports to Eskom Project manager in relation to implementation of the above. <input type="checkbox"/> Report legal contravention to Eskom and relevant authorities within required timeframes |
| | | <input type="checkbox"/> Handle information from whistle-blower as |

| | | |
|---|--|--|
| | | confidential and inform the relevant authorities as soon as possible. |
| Contractor (C) | | <input type="checkbox"/> Implement and comply with recommendations and conditions of the EMP, appoints / delegates a dedicated person to work with ECO |
| Contractor Environmental Liaison Officer (CELO) | | <input type="checkbox"/> Advises contractor on the possible ways of implementing and complying to the EMP, relevant legislations and other conditions imposed by relevant authorities. <input type="checkbox"/> Works with ECO to implement EMP on site |
| Eskom Transmission Environmental Officer | | <input type="checkbox"/> Provide environmental advice and conducts auditing. |

2.4. REPORTING STRUCTURE.

Both the ECO and CM are obliged to report any incidents and non-compliance to the Eskom Project Manager. The CELO is responsible for advising and reporting to the construction manager during the construction process.



All monthly and quarterly reports to be produced by the ECO should be submitted to both the construction manager and Project Manager. These reports should be kept in the site file at all times.

2.5. ENFORCEMENT, MONITORING AND AUDITING

Environmental Training to be given to all resources working on project to understand what the possible environmental impacts will be. This training to be given by the contractor to their employees.

The Environmental Control Officer will ensure compliance with this EMP and any relevant legislation. Continuous audits must be done to help in identifying the following issues:

- ☐ Incidents such as fuel spills, concrete spills, etc. and actions taken;
- ☐ Incidents that can lead to legal contraventions and litigation;
- ☐ Bees and Snakes.
- ☐ Complaints from affected parties including neighbouring businesses, communities, (these should be recorded and kept on file); and
- ☐ Environmental damage that needs rehabilitation.

2.6. GENERAL GUIDELINES FOR THE PROJECT

- It is the developer's responsibility to prevent any site degradation due to non-compliance during construction;
- All construction personnel must not be allowed to go beyond the Eskom yard where the upgrade will be taking place;
- The contractor must adhere to agreed and approved access points and haul roads and the neighbours must be notified according;
- The convenience of local communities to commute especially when going or returning from work and school must be promoted by avoiding contributing negatively to the existing traffic flow. If this cannot be avoided, local communities and the local authority must be notified in advance;
- There must be no camping on private property without having obtained the necessary permission;
- All damages that can be caused to neighbouring properties must be repaired in consultation with the owner;
- All relevant neighbouring landowners must be notified about the construction and the duration;
- There must be regular monitoring of site works;
- All personnel must be trained, and receive regular communication on how to work in an environmental-friendly manner;
- An ECO on behalf of the Contractor is to be appointed to implement this EMP;
- Environmental audits to be carried out during and upon completion of the project; and
- The Contractor must adhere to all conditions of this EMP.

2.7. AWARENESS RAISING AND CAPACITY BUILDING

Continuous communication to all employees on environmental matters will be an integral part of implementing this EMP. Awareness raising and capacity building to increase compliance with the EMP and relevant environmental legislation will be done through things like toolbox talk on a daily basis focusing on specific activities.

3. PHYSICAL ISSUES AND THEIR CONTROL

3.1. SITE ESTABLISHMENT AND MANAGEMENT

The contractor must make sure that a proper site camp is established to accommodate workers before construction starts. The contractor must provide a method statement that includes the layout of the camp, management of ablution facilities and wastewater management. The Choice of site for the Contractor's camp requires the EOs permission and must consider location of local residents and / or ecologically sensitive areas, including flood zones and slip / unstable zones.

3.1.1. ABLUTION FACILITIES AND WASTE MANAGEMENT

In the event the contractor cannot connect to the existing facilities, they are responsible to provide mobile chemical toilets. The Contractor shall inform all site staff about the use of supplied ablution facilities and under no circumstances shall indiscriminate excretion and urinating be allowed other than in supplied facilities.

There should be enough toilets available to accommodate the workforce (minimum requirement is 1:15 workers). Toilets shall be serviced regularly and the ECO shall inspect toilets regularly to ensure compliance to health standards.

The Contractor must also supply a wastewater management system that will comply with legal requirements and be acceptable to Eskom. The Contractor shall supply waste collection bins where such is not available and all solid waste collected shall be disposed of at a registered waste dumping facility. A certificate of disposal for chemical waste shall be obtained by the Contractor and kept on site and in file at all times. Where a registered waste disposal site is not available close to the construction site, the Contractor shall provide a Method Statement with regard to waste management. Under no circumstances may solid waste be burned on site for the upgrade of the substation because there is no incinerator on site. Littering by employees is prohibited, and the site must be kept aesthetically attractive.

In circumstances where the camp is not clean, the ECO must ensure that this is immediately rectified. The Contractor and the ECO must enforce cleanliness of the construction site camp. The ECO must monitor and report on this requirement.

☐ **Management objectives**

- Ensure that proper sanitation is achieved by encouraging all employees to use provided toilets;
-
- Minimise the potential of diseases on site; and
-
- Reduce the potential to pollute water, natural habitats and soil.

☐ **Measurable targets**

- The whole workforce use toilets;
- No visible signs of pollution on soil or water; and
- No litigation or compensation claims.

3.1.2. NOISE POLLUTION

During the installation and upgrade process, the Contractor shall ensure that noise levels remain within acceptable limits as outlined in the Noise-Induced Hearing Loss Regulations of 2003 promulgated under section 43 of the Occupational Health and Safety Act 85 of 1993. Excessive noise must not be allowed especially after working hours and during the night. In this instance, it is important to strictly access the construction site through existing roads and routes.

☐ **Management objectives**

- Prevention of noise pollution, especially during the night; and
- Minimise the nuisance factor of construction activities.

☐ **Measurable targets**

- No complaints from surrounding communities; and
- No litigation.

3.1.3. WORKSHOP, STORAGE AREAS AND SAFE HANDLING OF HAZARDOUS CHEMICALS

Properly demarcated areas for the maintenance workshop and equipment storage areas must be identified before the construction commences. Where possible and practical all maintenance of vehicles and equipment shall take place in a workshop area. During servicing of vehicles or equipment, a suitable drip tray (with a minimum depth of 10cm) shall be used to prevent carbon spills onto the soil, especially where emergency repairs are done outside the workshop area.

All employees must be notified about the dangers of soil and water pollution related to spillage of chemicals. Spill kits made of environmental-friendly material must be available on site and all vehicles that transport hydrocarbons. The ECO and the site manager must ensure all leaking equipment's are repaired immediately or removed from site to facilitate repair. All potentially hazardous and non-degradable waste must be collected and removed to a registered waste disposal site.

The workshop area shall be monitored for oil and fuel spills and such spills shall be cleaned and re-mediated to the satisfaction of the ECO. The Contractor must have a Method Statement identifying procedures for dealing with possible emergencies that can occur, such as fire and accidental leaks and spillages. The Contractor must ensure that all hazardous substances that include amongst others oil, paint, insecticides, acids, herbicides and fuel are stored in suitable containers and storage areas are bundled. A register must be kept on all substances and be available for inspection at all times.

The whole site must be monitored for spills and any spills must be contained, cleaned and rehabilitated immediately. Any leaking containers shall be repaired or removed from site (See the actions below remediation after spillages). Safety signs depicting "No smoking", "No naked lights" and "Danger" must be used in the storage area.

Containers shall be clearly marked to indicate contents as well as safety requirements.

The Contractor shall supply a method statement for the storage of hazardous materials and ensure that things are done in compliance with Safety, Health and Environment policy statement.

In cases where there accidental are spillages the following shall apply:

- All contaminated soil / yard stone shall be removed and be placed in containers. Contaminated material can be taken to one central point where bio-remediation can be done or disposed off at a suitable site;
- Smaller spills can be treated on site, and identified employees must be trained to perform this function;
- A specialist Contractor shall be used for the bio-remediation of contaminated soil where the required remediation material is not available on site; and
- All spills of hazardous substances must be recorded and reported immediately to the Environmental Advisor for further remedial action that may require engaging with relevant authorities.

3.1.4. CAMPING SITE AND AESTHETICS

The site shall be kept visually and aesthetically pleasing, especially in and around the construction camp. The ECO shall regularly inspect the site to ensure that it is neat and clean. Where required the campsite shall be screened by the Contractor to ensure that there is no unacceptable visual intrusion. Screening can be done by use of shade cloth or corrugated fencing. The camp must have dedicated wash areas that are situated away from areas with shallow groundwater. The area must also have bins for waste disposal.

□ **Management objectives**

- Aesthetically pleasing working areas, campsite and storage areas; and
- Minimise pollution and impacts to surrounding areas.

□ **Measurable targets**

- No complaints from affected parties on or around the site;
- No signs of pollution and visible signs of litter; and
- Method Statement.

3.2. MANAGEMENT OF THE SUBSTATION TERRAIN AREA

The upgrading of Leaches Bay Substation will require terracing for the development of an area for the proposed transformers. However, it is important to note that the site where terracing will be developed is already ecologically disturbed and not very sensitive. Consideration should be made to the fact that where terracing will be done the topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone. Such areas include terrace embankments and areas outside the high voltage yards. Where required, all sloped areas shall be re-vegetated using indigenous trees and stabilised to ensure proper rehabilitation is affected. These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of steep embankments.

The retained topsoil shall be spread evenly over areas to be rehabilitated and suitably compacted to effect re-vegetation of such areas to prevent erosion. Where required re-vegetation can also be enhanced using a grass seed mixture.

□ **Management objectives**

- Minimise scarring of the soil surface and land features other than on site;
- Prevent pollution of soil, surface and ground water on site and in the vicinity;
- Minimise chances of transgression of the acts of controlling pollution;
- Minimise disturbance and loss of topsoil from site;
- Minimise the possibility of cement residue affecting the surrounding environment; and
- Rehabilitate all disturbed areas in the substation area.

□ **Measurable targets**

- Method Statement by the Contractor;
- No visible erosion scars once construction is completed;
- No visible signs of pollution during construction;
- No litigation due to transgression of pollution control acts; and
- All disturbed areas successfully rehabilitated with the use of indigenous plants where necessary. This should be verified before site is handed over for operations

3.3. NATURAL DRAINAGE

The Contractor must ensure that all activities do not interfere with any watercourses in the vicinity of the site. Should deviation of such watercourses be required as part of the contract design specification, the specifications shall be adhered to strictly. The Environmental Control Officer shall ensure that all watercourses are adequately protected to prevent downstream siltation due to erosion on site. Rubble from the construction process shall be removed from site and may under no circumstances be dumped into any natural drainage channels. The normal flow of runoff water must not be impeded, as this will enhance erosion.

□ **Management objectives**

- Avoid damage and diversion of existing natural drainage channels; and
- Minimise scarring of soil surface, loss of topsoil and soil erosion.

□ **Measurable targets**

- No damage to natural drainage channels;
- No loss of topsoil;
- The footprint did not exceed agreed boundaries;
- No visible erosion scars on site; and
- All damaged areas successfully rehabilitated.

3.4. ACCESS ROADS TO THE SITE

Minor access routes will be needed to be established on-site to facilitate construction. If this is necessary, the areas must be properly demarcated with relevant signage to avoid confusion and accidents. No unauthorised access is permitted especially in the natural heritage area.

Where necessary suitable measures shall be taken to rehabilitate damaged areas related to access of the site.

□ **Management objectives**

- Minimise damage to existing access roads;
- Minimise damage to fauna and flora;
- Minimise loss of topsoil and enhancement of erosion; and
- Minimise impeding the natural flow of water.

□ **Measurable targets**

- No erosion visible on access roads three months after completion of construction;
- No loss of topsoil due to runoff water on access roads; and
- No interference with the natural flow of water.

3.5. CONSTRUCTION RUBBLE DISPOSAL AND WASTE MANAGEMENT

The Contractor must provide and maintain a method statement for solid waste management. In this method statement, licensed facility(ies) for waste disposal must be identified. The method statement will also outline the proposed record-keeping of waste disposal certificates for auditing purposes. No material shall be left on site that may harm people. Broken, damaged and unused spares such as porcelain, glass, nuts, bolts and washers shall be picked up and removed from site. Surplus concrete may not be dumped indiscriminately on site, but shall be disposed of in designated areas.

Concrete trucks shall not be washed on site after depositing concrete into foundations. Any spilled concrete shall be cleaned up immediately. There shall no illegal waste disposal because this can result in fines. Waste must also be separated into recyclable and non-recyclable, and must be separated as follows:

- Hazardous waste: This includes old oil paint, etc.
- General waste: This includes construction rubble.
- Reusable construction material.

Recyclable material must be deposited in separated bins: This includes glass, paper and tins.

☐ **Management objectives**

- To keep the site tidy and neat, and reduce the potential influx of flies and related diseases on site and surrounding areas;
- Disposal of construction rubble in an appropriate manner;
- Minimise litigation and complaints by I&AP;
- Reduce visual impact and retain the “sense of place” as much as possible;
- Minimise soil and water pollution; and
- Sustainable management of waste and recycling.

☐ **Measurable targets**

- Appropriate disposal of rubble and waste in general;
- No construction rubble left lying around on site;
- Neat and tidy site;
- Sufficient waste disposal available on site;
- No visible signs of pollution on soil and water on site and surrounding areas;
- No incidents of litigation;
- Method statement;
- No complaints from surrounding landowners and communities.

3.6. LITTERING CONTROL

Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite and ensure that there is provision of marked waste disposal bins.

☐ **Management objectives**

- Neat and healthy workplace and site

☐ **Measurable targets**

- No complaints from affected parties.

3.7. DISPOSAL OF OLD EQUIPMENT

All old equipment removed during the upgrade of Leaches Bay Substation shall be stored in such a way as to prevent pollution of the environment. Oil containing equipment shall be stored to prevent leaking or be stored on drip trays should such equipment already be leaking. All scrap steel shall be stacked neatly and any disused and broken insulators shall be stored in containers.

Once material has been scrapped and the contract has been placed for removal, the Contractor shall ensure that any equipment containing pollution causing substances is removed in such a way as to prevent spillage and pollution of the environment. **A method statement shall be developed for that purpose.** The Contractor shall also be equipped to contain and clean up any pollution causing spills. Disposal of unusable material shall be at a registered waste disposal site and a certificate of disposal shall be obtained and copied to Eskom.

□ **Management objectives**

- To prevent pollution of the environment; and
- Prevention of litigation due to illegal dumping.

□ **Measurable targets**

- No complaints from local Landowners / Regional staff / Communities;
- No pollution of the environment; and
- No litigation due to illegal dumping.

3.8. DUST POLLUTION

Reiger Park area, where Leaches Bay Substation is located has sandy/clay soils. Normally, there are periods where the place is very windy and this can exacerbate dust pollution during construction. It is important that the Contractor be responsible for

dust control on site to ensure no nuisance is caused to the local Landowners, neighbouring Communities or Regional staff at the substation. Watering of access roads is recommended, as this is normally the greatest cause of dust pollution. Speed limits can also be effected, especially on private dirt roads leading to the site. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor. The possibility of using grey water for dust control must be investigated as an alternative should the need arise. The control of cement and concrete dust which is toxic to soil properties is also vital (no water must be used for this purpose). Cement bags must not be allowed to scatter around the site and spread cement dust. All vehicles transporting material that can be blown off must be covered by tarpaulin and speed limits of 20km/h must be adhered.

□ **Management objectives**

- Site works do not cause dust nuisance to other people in the area; and
- Reduce dust fall out.

□ **Measurable targets**

- No formal complaints or claims arising due to dust pollution;
- No visible signs of dust;
- No visible signs of dust contamination on the surrounding environment; and
- No incidents reported to the ECO.

3.9. SITE CLEARING

The proposed installation of a transformer for this project will take place in an existing substation. The substation is already fenced off and it does not have trees except some portions with grass and small plants (See Figure 4). The grass and plants will be removed for clearing the construction site and the platform terraced for placing the transformer. All alien vegetation shall be removed from site during the project and disposed in suitable areas. Protected or endangered species of plants shall be retained where possible. Where such species have to be removed due to interference with structures, the necessary permission and permits shall be obtained by the ECO from Provincial Nature Conservation prior to commencement of site works. Search, rescue and replanting of indigenous, valuable and protected species is highly recommended where possible and viable.

The use of herbicides shall only be allowed after a proper investigation of the type of plant and correct herbicides to be used is done, the long-term effects and the effectiveness of the herbicides. Application shall be under the direct supervision of a qualified technician. All surplus herbicide shall be disposed of in accordance with the Supplier's specifications.

The Contractor for vegetation clearing, if needed, shall comply with the following parameters:

- The Contractor must have the necessary knowledge to be able to identify different species
- The Contractor must be able to identify declared weeds and alien species that can be totally eradicated.
- The Contractor must be in possession of a valid herbicide applicators licence
- The Contractor shall supply a method statement regarding vegetation clearing at the tender stage.

☐ **Management objectives**

- Minimise unnecessary damage to vegetation where such vegetation does not interfere with construction;
- Keep site as natural looking as possible;
- Minimise possibility of erosion due to removal of vegetation;
- Minimise scarring of the soil surface and land features;
- Minimise loss of topsoil;
- Minimise risks of veldt fires; and
- Minimise damage to natural features.

☐ **Measurable targets**

- Only vegetation cleared as required for site construction purposes;
- No visible erosion scars three months after completion of construction due to vegetation removal;
- No visible damage to the vegetation outside the site one year after completion of the contract due to herbicide leaching;
- All damaged areas successfully rehabilitated;
- The project footprint does not go beyond the existing substation site;
- No visible erosion scars once construction completed;
- Transplanting of indigenous plants, where possible, into appropriate areas in the yard;
- Method statement by Contractor should be available before construction
- site clearance commence;
-
- No litigation due to unauthorised removal of vegetation and veldt fires; and
-
- No unnecessary damage to natural features.

3.10. FENCING REQUIREMENTS

Leaches Bay Substation is already appropriately fenced. During construction the substation must be kept locked at all times, especially when works are stopped during weekends and holidays. All claims arising from gates left open shall be investigated and if at fault, settled in full by the Contractor. If any fencing interferes with the construction process, such fencing shall be deviated until construction is completed. The deviation of fences, if necessary, shall be negotiated and agreed with the relevant landowner in writing.

☐ **Management objectives**

- Use of existing gates for access to the site;
- Minimise damage to private fences; and
- Limit access to Eskom and Contractor personnel.

☐ **Measurable targets**

- No transgressions of the Fencing Act and therefore no litigation;
- No damage to fences and subsequent complaints from neighbouring landowners; and
- All gates kept locked at all times to limit access to construction staff.

3.11. FIRE PREVENTION

Taking into consideration the location of the substation and its surrounding land uses no open fires can be allowed on site under any circumstance (The Forest Act, No 122 of 1984). All cooking shall be done in demarcated areas that are safe and cannot cause runaway fires. The Contractor shall have operational fire-fighting equipment available on site.

☐ **Management objectives**

- Minimise risk of runaway veldt fires;
- Maintain safety on site; and
- Minimise damage to life and private property.

☐ **Measurable targets**

- No veld fires started by the Contractor's work force;
- Method statement; and
- No litigation from neighbouring landowners due to damages caused by fires.
- No open fires shall be allowed on site under any circumstance
- The Contractor shall have fire-fighting equipment available on site all the time.

3.12. MATERIAL STORAGE AREAS

Specifications require the protection of Eskom supplied material on site, especially conductor drums. This normally requires that a firebreak is created around a material storage area. These areas are left to rehabilitate on their own which could be disastrous. Once construction has been completed on site and all excess material has been removed, the storage area shall be rehabilitated.

☐ **Management objectives**

- Minimise disturbance of topsoil
- Successful rehabilitation of disturbed areas

☐ **Measurable targets**

- No remaining disturbance to vegetation outside the substation area
- No loss of topsoil
- All disturbed areas successfully rehabilitated one year after completion of the contract

3.13. TRANSPORTATION OF EQUIPMENT

Leaches Bay Substation is located next to a residential area. The existing access to the substation is also located closer to the area. It is very crucial that all equipment moved onto site or off site during the project is subject to the legal requirements as well as Eskom's specifications for the transport of such equipment. Oil filled equipment such as CT's, VT's and capacitor cans have specific safety requirements regarding their handling, transport and storage. The Contractor shall meet these safety requirements under all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according to specifications. All the required safety labelling on the containers and trucks used shall be in place. If the transportation of material will disturb the flow of traffic, local residents must be notified in advance and alternative routes must be identified for their use. The Contractor must avoid transportation of material during rush hour if possible.

The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident and shall supply a Method Statement to that effect.

☐ **Management objectives**

- Safe handling and transport of equipment;
- Safe handling and transport of hazardous substances; and
- Minimise environmental pollution and damage.

☐ **Measurable targets**

- All equipment delivered to site in tact without disrupting local traffic flow;
- Local communities informed in advance if traffic flow will be affected during transportation of material;
- No spillage of hazardous substances on roads;
- Method Statement; and
- No litigation due to environmental pollution.

3.14. INFRASTRUCTURE

No interruptions other than those negotiated shall be allowed to any essential services. Damage to infrastructure shall not be tolerated and any damage shall be rectified immediately by the Contractor. A record of any damage and remedial actions shall be kept on site.

All existing private access roads used for construction purposes, shall be maintained at all times to ensure that the local people have free access to and from their properties. Speed limits shall be enforced in such areas and all drivers shall be sensitised to this effect.

Any possible disruptions to essential services must be kept to a minimum and should be well advertised and communicated to the surrounding communities.

☐ **Management objectives**

- Securing of the safe use of local infrastructure

☐ **Measurable targets**

- No unplanned disruptions of services;
- No complaints from Authorities, Landowners and Communities regarding disruption of services; and
- No litigation due to losses of income.

4. SOCIAL ISSUES AND THEIR CONTROL

4.1. PREVENTION OF DISEASE

The Contractor shall take all the necessary precautions against the spreading of disease such as measles, foot and mouth, *etc.* A record shall be kept of drugs administered or precautions taken and the time and dates when this was done. This can then be used as evidence in court should any claims be instituted against Eskom or the Contractor.

The workforce shall also be sensitised to the effects of sexually transmitted diseases (STDs), especially AIDS. General health issues shall be brought to the attention of the site staff and condoms shall be supplied on site.

☐ **Management objectives**

- Prevent litigation due to infestation; and
- Prevent spreading of sexually transmitted diseases.

☐ **Measurable targets**

-
- No complaints from Communities; and
- No litigation.

4.2. INTERACTION WITH AFFECTED PARTIES

Successful upgrade of Leaches Bay Substation will depend on the maintenance of good relations with the affected local communities and Eskom Regional staff. The ECO and the Contractor must establish good relations with all the affected parties. All negotiations related to the project for any reason shall be between the ECO, the affected parties and the Contractor. **NO** verbal agreements shall be made. All agreements shall be recorded in writing and all parties shall co-sign the documentation.

The affected parties shall always be kept informed about any changes to the construction programme should they be involved. If the ECO is not on site the

Contractor should keep the affected parties informed. The contact numbers of the Contractor and the ECO shall be made available to the affected parties. This will ensure open channels of communication and prompt response to queries and claims.

All contact with the affected parties shall be courteous at all times, and the rights of the affected parties shall be respected at all times.

☐ **Management objectives**

- Maintain good relations with affected parties

☐ **Measurable targets**

- No delays in the project due to interference from affected parties

4.3. CLAIMS FOR DAMAGES

The ECO shall keep a photographic record of any damage to areas outside the demarcated site area. The date, time of damage, type of damage and reason for the damage shall be recorded in full to ensure the responsible party is held liable. All claims for compensation emanating from damage should be directed to the ECO for appraisal. The Contractor shall be held liable for all unnecessary damage to the environment.

A register shall be kept of all complaints from the community. All claims shall be handled immediately to ensure timeous rectification / payment by the responsible party.

☐ **Management objectives**

- Minimise complaints from Landowners and communities
- Prevent litigation due to outstanding claims
- Completion of the contract on time

☐ **Measurable targets**

- No claims from the Landowner or communities
- All claims investigated and settled within one month
- No litigation due to unsettled claims

4.4. CRIME, SAFETY AND SECURITY

The Contractor must ensure that a list of all local emergency telephone numbers / contact persons are kept on site and up to date. These contacts must be posted at all relevant locations throughout the site. The Contractor must also ensure that all employees do not engage in any criminal activity on site and in local communities.

☐ **Management Objectives**

- Reduce potential criminal incidences.

☐ **Measurable Targets**

- No incidents reported.

5. BIOLOGICAL ISSUES AND THEIR MANAGEMENT

5.1. FAUNA

Leaches Bay Substation is an already existing site with a functional electricity substation that is fenced and owned by Eskom. The area is already substantially altered ecologically and there are no animals to be conserved in the substation.

5.2. FLORA

Leaches Bay Substation does not contain any natural vegetation. The site is not ecologically sensitive and there is no substantial impacts on fauna and flora that is envisaged from the proposed upgrade. If any are found, special care should be taken not to damage or remove any such species unless absolutely necessary. Permits for removal must be obtained from the Provincial Nature Conservation should such species be affected. All plants not interfering with the operation of the substation shall be left undisturbed, clearly marked and indicated on the site plan

☐ **Management objectives**

- Minimal disturbance to vegetation where such vegetation does not interfere with construction and operation of the substation; and
- Prevention of litigation concerning removal of vegetation.

☐ **Measurable targets**

- No litigation due to removal of vegetation without the necessary permits.

5.3. HERBICIDE USE

Herbicide use, where necessary, shall only be allowed with the approval of Eskom and according to contract specifications. The application shall be according to set specifications and under supervision of a qualified technician. The possibility of leaching into the surrounding environment shall be properly investigated and only environmentally friendly herbicides shall be used.

☐ **Management objectives**

- Control on the safe application of herbicides;
- Proper storage in designated areas of herbicides;
- Workforce educated on the proper use of herbicides; and
- Proper disposal of containers that used to carry herbicides.

☐ **Measurable targets**

- No signs of vegetation dying due to leaching of herbicides one year after completion of the contract; and
- No community complaints and litigation.

6. CULTURAL ISSUES AND THEIR CONTROL

6.1. ARCHAEOLOGY

If during construction artefacts are found they shall not be removed under any circumstances. No Dolomite, Breccias or Stomatolites may be removed or disturbed without the required permits from the South African Heritage Resource Agency (SAHRA). However, it is envisaged that the proposed upgrade of Leaches Bay Substation is not going to have a major impact on heritage. Should any archaeological sites be uncovered during construction, their existence shall be reported to Eskom immediately.

☐ **Management objectives**

- Protection of archaeological sites, and land considered to be of cultural value;
- Protection of the heritage area against vandalism and destruction.
- The preservation and appropriate management of new archaeological finds should these be discovered during construction.

☐ **Measurable targets**

- No destruction of or damage to known heritage sites.

7. SITE REHABILITATION

All damaged areas shall be rehabilitated upon completion of the contract in accordance with design specifications. In accordance with the Conservation of Agricultural Resources Act, No 43 of 1983, slopes in excess of 2% must be contoured and slopes in excess of 12% must be terraced. Extra seed shall be sown on disturbed areas as directed by the ECO. Other methods of rehabilitating disturbed sites may also be used at the discretion of the PM to comply with the conditions of the EMP, e.g. stone pitching, logging, *etc.* Contour banks shall be spaced according to the slopes. The type of soil shall also be taken into consideration.

- A mixture of grass seed can be used provided the mixture is carefully selected to ensure the following:
- Annual and perennial grasses are chosen.
- Pioneer species are included.
- Species chosen will grow in the area under natural conditions.
- Root systems must have a binding effect on the soil.
- The final product should not cause an ecological imbalance in the area.

To get the best results in a specific area, it is a good idea to consult with a specialist or the local Extension Officer of the Dept of Agriculture.

☐ **Management objective**

- Minimise damage to topsoil and environment
- Successful rehabilitation of all damaged areas
- Prevention of erosion

☐ **Measurable targets**

- No loss of topsoil due to construction activities
- All disturbed areas successfully rehabilitated within one year of completion of the contract
- No visible erosion scars one year after completion of the contract

8. POTENTIAL PROBLEMS

8.1. PRE-CONSTRUCTION

Local communities and landowners may see the construction period as interference with their daily activities. This may lead to a negative attitude towards the whole construction process.

8.2. DURING CONSTRUCTION

Damage to fences, gates and other infrastructure may occur at any time. This will create problems with local Landowners and communities and should be avoided as far as possible.

8.3. AFTER CONSTRUCTION

If damaged infrastructure is not repaired to the expectations of the affected parties, they may engage in litigation. Outstanding claims for damages may also result in litigation.

9. POSSIBLE SOLUTIONS TO POTENTIAL PROBLEMS

1. Proper continuous liaison (communication) between Eskom, the Contractor and affected parties regarding do's and don'ts.
2. The Contractor must adhere to all conditions of contract including the Environmental Management Programme.
3. Environmental awareness training and toolbox talks shall be given to all site staff regarding the conditions of this EMP, and shall include relevant posters placed strategically for information purposes.
4. Proper planning of the construction process to allow for disruptions due to rain and very wet conditions.
5. Where existing private roads are in a bad state of repair, such roads' condition shall be documented before they are used for construction purposes. If necessary some repairs should be done to prevent damage to equipment and plant.
6. All manmade structures shall be protected against damage at all times and any damage shall be rectified immediately.
7. The Contractor shall ensure that all damaged areas are rehabilitated to the satisfaction of Eskom and each and every affected party and that outstanding claims are settled.
8. Proper site management and regular monitoring of site works.
9. Proper documentation and record keeping of all complaints and actions taken.
10. Regular site inspections and good control over the construction process throughout the construction period.

11. Continuous adherence of the Contractor and all employees on site during construction to Eskom's Safety, Health and Environment Policy.

12. A positive attitude towards implementing Environmental Management by all site personnel.

13. Environmental Audits to be carried out during and upon completion of construction (at least two).

10. SITE SPECIFIC PROBLEM AREAS

Site specific problems, if any, must be shown on the layout plans **(Design)** and accompanying photographs. No-go areas, if any, must also be identified on the plans.

11. METHOD STATEMENTS FOR THE CONTRACT

The Contractor shall supply method statements for all works required as stated throughout this document as per specific contract requirement. All agreements regarding extra works for environmental compliance shall be in writing and well documented. Work shall only commence upon approval by Eskom.

The ECO shall ensure that all works are in accordance with Method Statements and Contract Specifications.

12. SITE DOCUMENTATION, MONITORING AND REPORTING

The standard Eskom site documentation shall be used to keep records on site. All documents shall be kept on site and be made available for monitoring purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legal. Regular monitoring of site works by the ECO is imperative to ensure that all problems encountered are solved punctually and amicably. When the ECO is not available, the Contract Manager / Site Supervisor shall keep abreast of all works to ensure no problems arise.

Two-weekly environmental compliance reports shall be forwarded to the Engineering Environmental Advisor (appointed per project) with all information relating to environmental matters. The following Key Performance Indicators must be reported on a two-weekly basis by the ECO:

- Complaints received from affected parties and actions taken.
- Environmental incidents, such as oil spills (See Appendix G for Eskom's Oil Spill Clean-Up and Rehabilitation Standards),, etc. and actions taken.

- Incidents possibly leading to litigation and legal contravention.
- Environmental damage that needs specialised rehabilitation measures to be taken.

The following documentation shall be kept on site by the ECO:

- Site daily diary.
- Complaints register.
- Records of all remediation / rehabilitation activities.
- Copies of two-weekly reports to the Engineering Environmental Advisor for auditing purposes.
- Copy of the Environmental Management Programme.
- Minutes of site meetings including discussions on environmental issues.
- Records of toolbox talk¹ held with employees.
- Eskom SHEQs Policy
- Emergency Numbers
- One or more site drawing(s) indicating the site location; site set-up and layout; erosion and sediment controls (as appropriate for the jurisdiction); and, environmental sensitivities.

¹ Toolbox talk refers to daily discussions by construction workers focusing on a topic of the day aimed at raising environmental awareness amongst employees.

13. REFERENCES

Conservation of Agricultural Resources Act, Act 43 of 1983 and amendments.

Corporate directive for the management of PCB, ESKADAAO3 REV 1.

Hazardous Substances Act, 15 of 1973 and amendments.

Health Act, Act 63 of 1977.

Herbicide Management, ESKPBAAD4 REV 0.

Minerals Act, Act 50 of 1991.

National Environmental Management Act, Act 107 of 1998.

National Forest Act, Act 84 of 1998.

National Heritage Resources Act, Act 25 of 1999.

National Water Act, Act 36 of 1998. Noise-Induced

Hearing Loss Regulations of 2003. Occupational Health

and Safety Act, Act 85 of 1993

Standard passive fire protection for oil-filled equipment in High Voltage yards,
TRMASAAQ8 REV 4

Standard for management of PCB, ESKASAAC2 REV1.